2025-2026 AP Physics 2

Dr. Anthony L. Lau **Regular Conference Time: 10:20 to 11:15**
Room 225 **anthony.lau@fortbendisd.gov**

Tutorial Times: **TBA**

The 2 symbiotic objectives for this course are the following

- Learn Physics
- Earn a 3 or higher on the AP Physics 2 exam

Textbook: Knight, Jones and Field. *College Physics*. 4th Edition

This course follows the second semester of algebra-based College Physics. The following topics will be covered over the year.

1) Review of Forces and Energy
2) Thermodynamics
   a) Heat and Thermal Energy
   b) Entropy
   c) Atomic Model of Temperature
   d) Ideal Gas Laws and PV Diagrams
3) Electrostatics (Study of stationary charges)
   a) Insulators vs. Conductors
   b) Coulomb's Law
   c) Electric Fields
   d) Gauss's Law and Electric Flux
4) Electric Potential
   a) Electric Potential Energy
   b) Voltage
5) Electrical circuits (Study of charges in motion)
   a) Kirchhoff's Rules for resistance circuits with multiple voltages
   b) Resistance Circuits
6) Capacitance
   a) Charge distributions and separations
   b) Electric Fields and motion
   c) Capacitance Circuits
   d) Resistance – Capacitance Circuits
7) Electromagnetism
   a) Types of Magnetism
   b) Magnetic Force
   c) Magnetic Fields using Ampere's Law
   d) Magnetic induction and magnetic flux
   e) Solenoids
8) Mechanical Waves
   a) Wave Speed
   b) Tension, Energy and Wave speed
   c) Boundary Lengths and Harmonics
   d) Interactions of Waves with Boundaries
   e) Intensity
9) Wave-like properties of light
   a) Reflection, refraction, diffraction, interference
   b) Geometric Optics
10) Particle nature of light
   a) Electromagnetic waves
   b) Quantum Mechanical nature of light
   c) Atomic spectra and colors
   d) Compton Scattering
   e) Blackbody Radiation
11) Atomic and Nuclear Physics
   a) Nuclear reactions
   b) Radioactive decays
   c) Mass-Energy equivalence

Academic Dishonesty:

I am very serious about ensuring everyone has an equal opportunity to earn the grade they deserve. Academic dishonesty disrupts this equal opportunity. I have taken structural steps in how I design assessments to mitigate academic dishonesty.

Consequences for academic dishonesty will be a 100% deduction of earned points. Student will be allowed to take a retest up to a maximum of 75 points on their first offense. Any subsequent offenses of academic dishonesty, the student will also lose their chance to take a retest.

A. Electronic devices (including, but not limited to phones, Bluetooth/Wi-Fi/Cellular-enabled devices (including, but not limited to watches, ear buds, glasses, etc), tablets, and laptops) will not be allowed during assessments. Any such devices will be placed with the student's belongings. Phones may be collected individually. Any such device found on a student's person after the assessment has started may be grounds for academic dishonesty.

B. On assessments, calculators will be the classroom calculators. If you bring your own calculator, it must be cleared by your teacher before use. For TI nSpires, a fresh instance of Press-to-Test mode is required.

C. Artificial intelligence ("AI") refers to computer algorithms that simulate human cognition. Examples include, but are not limited to ChatGPT, Microsoft Copilot, and Google Gemini. They may not be used for labs, quizzes, or tests. They may be used to provide help with practice work, but their use should be limited as much as possible. If the "AI" is helping with every practice question, what are you, the student, doing?

D. Cameras may be deployed around the classroom during assessments (quizzes and tests). Only video will be recorded. Videos will not be published and only the segment that is used as evidence of academic dishonesty will be saved. All videos will be deleted at the end of the school year.

Absences and Make up Work

Student attendance is critical to success in this class. **Obtaining make up work is the responsibility of the student.** Make up work should be done at home or during scheduled tutorials, not during class. Students will have missed days +1 for daily work and missed days +5 for majors (changes will be on a case-by-case basis).

Grading Policy:

Major Grades – 50% will include tests, projects, and formal labs.

1 day late – 10 points off 2 days late – 20 points off 3 days late – 30 points off

You will receive 3 major grades each nine weeks. The lowest major grade will be dropped at the end of the nine-week period. If your test grade is less than a 75, you may retest to raise your test grade up to a maximum of a 75. In order to retest, you must come in for a full tutorial session (Monday through Wednesday) and take the test afterschool on Thursday or Friday.

Daily Grades – 50% will include quizzes, current event reports, homework, labs, and class work.

Homework: Home practice will be assigned frequently. Current event reports are due every 3rd Wednesday, dates are posted on the calendar.

Late Assignments: An assignment is considered late if it is not turned before 2:50 PM for non-digital assignments. Digital assignments are due by 11:59:59 PM. Assignments will not be accepted after 3 days, a zero will be entered in the grade book.

1 day late – 10 points off 2 days late – 20 points off 3 days late – 30 points off

Classroom Expectations:

We will follow the posted ACHIEVE guidelines for classroom activities and procedures. In the classroom students are expected to be:

1. *Be Present* – success in physics requires that you attend every class.
2. *Be Prompt* – you should be in your seat and be ready to start when the bell rings.
3. *Be Prepared* – bring all necessary supplies to class every day.
4. *Be Productive* – do your best, stay focused, stay on task and participate fully.
5. *Be Polite* – respect your class-mates and teacher.